

Date: Sun, 27 Feb 94 23:37:52 PST
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>
Errors-To: Info-Hams-Errors@UCSD.Edu
Reply-To: Info-Hams@UCSD.Edu
Precedence: Bulk
Subject: Info-Hams Digest V94 #215
To: Info-Hams

Info-Hams Digest Sun, 27 Feb 94 Volume 94 : Issue 215

Today's Topics:

 [rec.radio.amateur.misc] Re: online rpt idea
 ANS-057 BULLETINS
 Buying Yupiteru MVT-7100 (from ACE Communications?) (2 msgs)
 CQ - magazine.
 Hamfest List?
 MODS REQUEST: IC-2330
 Saturday 2/26 10m station on air in Mall
 Software for DOS-PC for decoding Mor
 Subscribe
 Travelling to Egypt
 tube wanted..

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text
herein consists of personal comments and does not represent the official
policies or positions of any party. Your mileage may vary. So there.

Date: Sat, 26 Feb 1994 14:53:07 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!howland.reston.ans.net!wupost!crcnis1.unl.edu!
news.unomaha.edu!cwis!pschleck@network.ucsd.edu
Subject: [rec.radio.amateur.misc] Re: online rpt idea
To: info-hams@ucsd.edu

In <CLr3yv.K29@avalon.chinalake.navy.mil> erik@peewee.chinalake.navy.mil (Tom
Servo) writes:

>What about a different approach, one worthy of usenet? If there were
>a newgroup called say, rec.radio.amateur.repeater dedicated to
>providing assistance and information about repeaters, people would

>provide info, ask questions, and somewhere, an archive site would
>accumulate repeater listings. The whole process happens naturally
>by itself, with no monetary interests involved (and no "leader"
>to lynch :-).

Except that most likely the newsgroup would turn into about 99.9%
questions (and arguments), and maybe 0.1% useful information. You could
make the newsgroup moderated, of course, but that would require a
committed volunteer moderator (and that would introduce a "leader" to lynch,
which you wanted to avoid). It would seem that as a practical matter,
ultimately you need someone to take responsibility because order and
organization on the net will *NOT* happen "naturally by itself."

Such a newsgroup was discussed at the last major reorganization about 8
months ago, and was put aside because most opinions were that it would
collapse into flamage over repeater coordinating bodies and how
information is gathered for existing directory projects (more worthy of
*.policy). However, since that time there may be renewed sincere
interest in running a proper newsgroup on the subject.

If you want such a newsgroup proposal to be successful (both in passing
a vote, and in having worthwhile content after it is created), you
should probably round up your volunteers up front. Find yourself at
least a half-dozen committed contributors and an FTP site. A good first
place to turn would be the rra-wg (rec.radio.amateur Working Group)
mailing list. They could advise you regarding volunteers, finding an FTP
site, and will at least try to convince you that rec.radio.info is what you
wanted all along :-). They can also offer you guidance regarding the
RFD/CFV process. To subscribe, send E-mail to rra-wg-request@amdahl.com.

73, Paul W. Schleck, KD3FU

pschleck@unomaha.edu

Date: 27 Feb 94 16:46:01 GMT
From: news-mail-gateway@ucsd.edu
Subject: ANS-057 BULLETINS
To: info-hams@ucsd.edu

SB SAT @ AMSAT \$ANS-057.01
PRELIMINARY RS-15 INFORMATION

HR AMSAT NEWS SERVICE BULLETIN 057.01 FROM AMSAT HQ
SILVER SPRING, MD FEBUARY 26, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-057.01

Preliminary RS-15 Data Provided by LW2DTZ

Gustavo Carpignano (LW2DTZ) provides this summary of information regarding RS-15 which he has obtained from several Russians who are participating in this project.

According to these sources, the official "presentation" of RS-15 to the Russian Space Agency has been delayed until 20-MAR-94. The launch date has shifted its position for launch since the Cosmodrome is not quite ready for it. It is reported that RS-15 will be launched by a Rokot vehicle, which is a refurbished SS-19 with the addition of a third stage.

Some data regarding equipment and orbital parameters are:

Uplink: 145.857 - 145.897 MHz
Downlink: 29.351 - 29.397 MHz
Beacon #1 29.398 MHz Power 0.4 or 1.2 W
Beacon #2 29.353 MHz Power same as Beacon #1
Antenna 1/4 wave
Height 2,300 KM
Inclination 67 degrees

Much of this information has also been confirmed by Vern Riportella (WA2LQQ) by his sources in Russia.

[The AMSAT News Service (ANS) wishes to thank Gustavo Carpignano (LW2DTZ) of AMSAT-LU and Vern Riportella (WA2LQQ) for the information used in preparing this bulletin.]

/EX

SB SAT @ AMSAT \$ANS-057.02
G0/K8KA RECEIVES HIS PHD

HR AMSAT NEWS SERVICE BULLETIN 057.02 FROM AMSAT HQ
SILVER SPRING, MD FEBRUARY 26, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-057.02

G0/K8KA Receives Doctorial Degree From University of Surrey

It is with very great pleasure that the amateur space community congratulates Jeff Ward (K8KA/G0SUL) on the award of his PhD thesis after a "viva voce" examination Thursday, 24-FEB-94 at the University of Surrey in England. Dr. Martin Sweeting (G3YJO) announced that Jeff's thesis, entitled "The Design, Implementation and In-Orbit Demonstration of a Store & Forward Digital Communication System for Low Earth Orbit Satellites", was accepted by the University of Surrey Examiners unanimously

without need for any corrections. G3YJ0 notes that such unconditional acceptance is a rare occurrence.

The amateur space community joins G3YJ0 in saying, "Well done Dr. Ward"!

Bill Tynan W3X0, AMSAT-NA President says that he is especially pleased with Jeff's accomplishment because they represent yet another example of the role that amateur radio can play in education at all levels.

[The AMSAT News Service (ANS) would like to thank Martin Sweeting (G3YJ0) for the information used in this bulletin.]

/EX

SB SAT @ AMSAT \$ANS-057.03
BREMSAT TELEMETRY REPORTS NEEDED

HR AMSAT NEWS SERVICE BULLETIN 057.03 FROM AMSAT HQ
SILVER SPRING, MD FEBUARY 26, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-057.03

BREMSAT Telemetry Reports Requestedle For A0-13

The German BREMSAT satellite was deployed on the STS-60 shuttle mission in early February as a "getaway special." It is a scientific satellite carrying a number of experiments including measurements of atomic oxygen, micro-meteor/dust impacts, etc. BREMSAT is in a low orbit and is predicted to enjoy a lifespan of only 45 days.

Oliver Amend (DG6BCE) has asked radio amateurs for assistance in monitoring BREMSAT's telemetry during reentry. Oliver is a member of the German "Technical Youth Leisure Education Association." They hope to compile the reentry telemetry from several groundstations located along the reentry path. However, the path is difficult to predict and he is looking for amateurs -- particularly those in the southern hemisphere -- who can act as monitoring stations to fill any gaps in their coverage.

BREMSAT transmits 9600 bps telemetry on 137.8 MHz. The data can be received with a simple bi-phase decoder. Construction details are available directly from DG6BCE.

If you are interested in monitoring the final moments of BREMSAT, or if you know anyone who is, please contact Oliver Amend at the following address:

Oliver Amend
Durerstr. 56
D-28844 Weyhe-Leeste
Germany

At this late date, it may be best to send a fax message to him if you have the capability. Address the fax cover sheet to:

Oliver Amend
c/o DST GmbH, Abt. KTT
fax number: 49-421-40-46-60

/EX
SB SAT @ AMSAT \$ANS-057.04
AO-13 OPERATIONS NET SCHEDULES

HR AMSAT NEWS SERVICE BULLETIN 057.04 FROM AMSAT HQ
SILVER SPRING, MD FEBRUARY 26, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-057.04

Current AMSAT Operations Net Schedule For AO-13

AMSAT Operations Nets are planned for the following times. Mode-B Nets are conducted on AO-13 on a downlink frequency of 145.950 MHz. If, at the start of the OPS Net, the frequency of 145.950 MHz is being used for a QSO, OPS Net enthusiasts are asked to move to the alternate frequency of 145.955 MHz.

Date	UTC	Mode	Phs	NCS	Alt NCS
05-Mar-94	2200	B	077	W9ODI	VE2LVC
13-Mar-94	0130	B	075	VE2LVC	W9ODI
19-Mar-94	1730	B	073	W5IU	WA5ZIB
26-Mar-94	2130	B	084	WA5ZIB	W5IU

Any stations with information on current events would be most welcomed. Also, those interested in discussing technical issues or who have questions about any particular aspect of OSCAR statellite operations, are encouraged to join the OPS Nets. If neither of the Net Control Stations show up, any participant is invited to act as the NCS.

AO-13 ZRO Tests For March 1994

The following schedule of Mode "B" tests were chosen for convenient operating times and favorable squint angles. The tests can be heard on 145.840 MHz. Andy McAlister (WA5ZIB) will conduct all the tests. Mode "JL" tests will no longer occur due to the failure of AO-13's 70CM transmitter.

Day	Date (UTC)	Time	Areas covered
-----	------------	------	---------------

Saturday Mar. 19, 1994 1930 UTC NA, SA, Europe, Africa
Saturday Mar. 26, 1994 2315 UTC NA, SA

Note that the dates and days are shown in "UTC". Any changes will be announced as soon as possible via the AMSAT HF and AO-13 Operations Nets.

All listener reports with date of test and numbers copied should be sent to Andy MacAllister (WA5ZIB), AMSAT V.P. User Operations, 14714 Knights Way Drive, Houston, TX 77083-5640. A report will be returned verifying the level of accurate reception. An S.A.S.E. is appreciated but not required.

/EX
SB SAT @ AMSAT \$ANS-057.05
WEEKLY OSCAR STATUS REPORTS

HR AMSAT NEWS SERVICE BULLETIN 057.05 FROM AMSAT HQ
SILVER SPRING, MD FEBUARY 26, 1994
TO ALL RADIO AMATEURS BT
BID: \$ANS-057.05

Weekly OSCAR Status Reports: 26-FEB-94

AO-13: Current Transponder Operating Schedule:
L QST *** AO-13 TRANSPONDER SCHEDULE *** 1994 Jan 31-Apr 04
Mode-B : MA 0 to MA 90 |
Mode-BS : MA 90 to MA 120 |
Mode-S : MA 120 to MA 145 |<- S transponder; B trsp. is OFF
Mode-S : MA 145 to MA 150 |<- S beacon only
Mode-BS : MA 150 to MA 180 | Blon/Blat 180/0
Mode-B : MA 180 to MA 256 |
Omnis : MA 230 to MA 30 | Move to attitude 240/0, Apr 04
[G3RUH/DB20S/VK5AGR]

FO-20: The following is the current schedule for transponder operations:

ANALOG MODE:

23-FEB-94 8:05 -TO- 02-MAR-94 6:40 UTC

09-MAR-94 7:05 -TO- 16-MAR-94 7:30 UTC

23-MAR-94 7:52 -TO- 30-MAR-94 8:15 UTC

DIGITAL MODE: Unless otherwise noted above.

[Kazu Sakamoto (JJ1WTK) qga02014@niftyserve.or.jp]

AO-16: Operating normally. [WH6I]

LO-19: Operating normally. [WH6I]

IO-26: The BBS is up and running (1200 baud) and seeing a lot of use.

[WH6I]

KO-23: Up and running. [WH6I]

KO-25: The BBS is running. After the first "bunch" of images, there have been no new ones. The format for the smaller image files will apparently not be made available to amateurs. [WH6I]

RS-12: Last week ZS6AOP asked what the preferred mode of operation is over Europe and the US? AL7MK reports that while he lived in Alaska, about 75% of his QSOs on RS-12 were accomplished using CW because, as he explains, "it worked better on marginal passes." Today AL7MK lives in CT. His satellite operations only include MIR using his H/T with a 30 watt amplifier at the moment until he brings his HF gear out of storage. [AL7MK @ W1NRG.CT]

The AMSAT NEWS Service (ANS) is looking for volunteers to contribute weekly OSCAR status reports. If you have a favorite OSCAR which you work on a regular basis and would like to contribute to this bulletin, please send your observations to WD0HHU at his CompuServe address of 70524,2272, on INTERNET at wd0hhu@amsat.org, or to his local packet BBS in the Denver, CO area, WD0HHU @ W0LJF.#NECO.CO.USA.NOAM. Also, if you find that the current set of orbital elements are not generating the correct AOS/LOS times at your QTH, PLEASE INCLUDE THAT INFORMATION AS WELL. The information you provide will be of value to all OSCAR enthusiasts.

/EX

Date: 26 Feb 1994 08:24:09 -0500
From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!news.umbc.edu!eff!news.kei.com!ddsw1!panix!not-for-mail@network.ucsd.edu
Subject: Buying Yupiteru MVT-7100 (from ACE Communications?)
To: info-hams@ucsd.edu

In article <2kk7p0\$t5d@zone4.ocunix.on.ca>,
Andrew Cornwall <andrew@zone4.ocunix.on.ca> wrote:
>I saw an ad in one of the "Buyer's Guide" type magazines that came out
>last December, in which ACE Communications advertised the MVT-7100 for
>US \$399. I asked them for information a couple of times (by phone and
>fax) with no reply. Then I asked for info from rec.radio.amateur.misc;
>the person who commented about ACE Communications detailed return
>hassles and said, "I won't do business with ACE."

ACE submitted a reprogrammed MVT-7100 to the FCC for certification last year. The FCC turned down the application because they had not excluded

enough of the cellular frequencies, and the unit emitted too much RFI (this radio is poorly shielded). ACE cannot legally sell this radio in the US.

The MVT-7100 is a \$600 radio. Are you sure the \$399 price you was wasn't for the MVT-7000?

>Unfortunately, the only other place I've heard of the MVT-7100 being
>available is Javation, who's charging UK L385, which is way out of my
>league.

See above.

>Can anyone solve my dilemma? Either saying, "I've ordered the
>MVT-7100 from ACE and it not only came in two days, but cured my
>recurring dreams about space aliens" or, "Order from XYZ Corp.,
>instead---they're selling it for \$19.95 with the steak knives."
>would help me make up my incredibly indecisive mind...

Sorry, can't help.

I wouldn't deal with ACE, period.

--

Mike Schuster | schuster@panix.com | 70346.1745@CompuServe.COM
----- | schuster@shell.portal.com | GENie: MSCHUSTER

Date: 26 Feb 1994 11:48:57 -0500

From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!

news.intercon.com!panix!not-for-mail@network.ucsd.edu

Subject: Buying Yupiteru MVT-7100 (from ACE Communications?)

To: info-hams@ucsd.edu

In <2kk7p0\$t5d@zone4.ocunix.on.ca> andrew@zone4.ocunix.on.ca (Andrew Cornwall) writes:

>I saw an ad in one of the "Buyer's Guide" type magazines that came out
>last December, in which ACE Communications advertised the MVT-7100 for
>US \$399. I asked them for information a couple of times (by phone and
>fax) with no reply. Then I asked for info from rec.radio.amateur.misc;
>the person who commented about ACE Communications detailed return
>hassles and said, "I won't do business with ACE."

I've never dealt with ACE, but I believe I have the buyer's guide you are talking about - 'CQ Amateur Radio 1994 Equipment Buyer's Guide', right? The ad in question is one page 63? If so, check again, it's

listed at \$599.

Date: Sat, 26 Feb 1994 17:46:39 GMT
From: netcomsv!netcom.com!slay@decwrl.dec.com
Subject: CQ - magazine.
To: info-hams@ucsd.edu

Kenneth Opskar (kenneth@Lise.Unit.NO) wrote:
: Can anyone E-mail me the address to the CQ-magazine ??
: I want to subscribe, now !

CQ Communications, Inc.
76 North Broadway
Hicksville, NY 11801-2953
USA

Subscriptions for overseas:

1 year - \$ 29.00
2 years - \$ 55.00
3 years - \$ 81.00

To overseas by AIRMAIL:

1 year - \$ 82.00
2 years - \$161.00
3 years - \$240.00

73 de Sandy
WA6BXH/7J1ABV

Date: 26 Feb 1994 16:35:11 GMT
From: ihnp4.ucsd.edu!swrinde!gatech!mailer.acns.fsu.edu!freenet3.scri.fsu.edu!
freenet2.scri.fsu.edu!dgagnon@network.ucsd.edu
Subject: Hamfest List?
To: info-hams@ucsd.edu

Hi Chris,
My name is Don and my call is WB8HQS in Fort Wayne, IN. I'm just learning INTERNET, and saw your message about a hamfest list. I am the chairman of the Fort Wayne Hamfest & Computer Expo and also the SYSOP of the W9INX BBS here in Fort Wayne, and I like to keep an active regional hamfest list on the BBS. If you got a response to your inquiry, I would appreciate a copy.

I assume this system will give you my address automatically, but since I'm not sure, here it is: dgagnon@freenet.scri.fsu.edu

Thanks and 73, Don

Date: Sat, 26 Feb 94 12:51:20 GMT
From: netcomsv!netcomsv!skyld!jangus@decwrl.dec.com
Subject: MODS REQUEST: IC-2330
To: info-hams@ucsd.edu

In article <CLtsFu.BwK@news.Hawaii.Edu> jherman@uhunix3.uhcc.Hawaii.Edu writes:

[quotes my reference to Walt and the world.std.com thing]
>
> Were you abused during childhood? You seem to have a fixation
> on certain body parts (in addition to cops' belts :).
>
> Jeff NH6IL

Thank you for playing "Usenet Roadkill" Jeff. Jay, tell him what he's won; Well, Jeff's the lucky winner of just under a thousand rounds of 9mm ammo. A real bargain at only 7 cents a round. (see relevant thread in gun news)

Nice try loser. You're the one with the fixation. Post after post about the "problem" at the university. How come you're the only one complaining? Surely you're not the only heterosexual left on campus.

By the way, I'm glad to see that the phrase "wannabe" has gotten to you. Perhaps if you stop playing net.cop people will stop calling you that.

Handy usenet flame tip: wrap the keybaord in Saran Wrap(tm) prior to responding to personal attacks. It makes it easier to keep the spittle off the keys while frothing over the posting you're quoting.

Amateur: WA6FWI@WA6FWI.#SOCA.CA.USA.NA	"You have a flair for adding
Internet: jangus@skyld.grendel.com	a fanciful dimension to any
US Mail: PO Box 4425 Carson, CA 90749	story."
Phone: 1 (310) 324-6080	Peking Noodle Co.

Date: 26 Feb 94 12:47:14 GMT

From: ihnp4.ucsd.edu!library.ucla.edu!europa.eng.gtefsd.com!news.umbc.edu!eff!
news.kei.com!newsstand.cit.cornell.edu!piccolo.cit.cornell.edu!crux1!
jrl2@network.ucsd.edu
Subject: Saturday 2/26 10m station on air in Mall
To: info-hams@ucsd.edu

Hello All,

The Cornell Amateur Radio Club will be operating from the local Mall on Saturday Feb 26th from 10am to 6pm on 10 meters. This is for Engineeering Day at the Mall, a local 'get kids interested in sciecne' day. We will be on 28.365Mhz/28.465Mhz depending on other traffic. If both those freqs are busy, well you'll have to find us. Operators will include..

Jeff N2TIQ

George N2XNE

Jon KB2MTI

among others. WE'll basicly be showing people what ham radio is about, and would like to talk to some hams from around the country (most likely CA though the way things have been on 10m for me laterly, buttt....

Hope to see you there,

Thanks,

-Jeff Luszcz N2TIQ

Date: 26 Feb 1994 17:21:34 GMT

From: ihnp4.ucsd.edu!swrinde!cs.utexas.edu!howland.reston.ans.net!agate!
news.Brown.EDU!noc.near.net!news.delphi.com!pschou@network.ucsd.edu
Subject: Software for DOS-PC for decoding Mor
To: info-hams@ucsd.edu

HamComm is a good program that will do RTTY as well as Morse. If you can't find it from a local source you can ftp it from ftp.std.com .
Here is a description from the doc file.

HamComm
Version 2.0
October 10th 1991
W. F. Schroeder
DL5YEC

HamComm is a program for ham radio communications. It supports reception and transmission of amateur radio teletype and Morse code

signals. A converter or modem chip is not required. The audio output of the receiver is connected to the serial port of any PC/XT/AT compatible computer thru a very simple and low-cost circuit. Only one IC is needed (Op-Amp LM741 or similar) and a few diodes, capacitors and resistors. The supply current is drawn from the serial port. For transmission the speaker output is connected to the microphone input of the transmitter thru a passive r/c filter. Audio frequency decoding, serial/parallel conversion and all other signal processing is done by the program.

Good luck with your license.

Internet: pschou@delphi.com Packet Radio: KE6ET@KA3RFE.MD.USA.NOAM
Paul B. Schou 501 Tayman Drive Annapolis, MD 21403

Date: 28 Feb 94 01:05:02 GMT
From: news-mail-gateway@ucsd.edu
Subject: Subscribe
To: info-hams@ucsd.edu

Sub info-ham Ralph Grover

Date: 26 Feb 1994 16:16:13 GMT
From: ihnp4.ucsd.edu!swrinde!elroy.jpl.nasa.gov!nntp-server.caltech.edu!
magued@network.ucsd.edu
Subject: Travelling to Egypt
To: info-hams@ucsd.edu

>turini@gdls.com (Bill Turini) writes:

>

>I will be travelling to Cairo in the near future. I have been told to forget about

>bringing any amateur radio equipment as there is no possibility of getting an
>operating license there.

>

>But I was also told by the ARRL to not even bring a short wave receiver/alarm
>clock/AM/FM Radio as they were very strict on any type of radio equipment.

>

I agree with Khaled, this total BS. I have never heard of an opertaing

licence for a radio, unless if it can pick up police bands, in which case you will not be allowed to use it period, licence or not.

magued

Date: 22 Feb 94 22:09:54 GMT
From: bagate!dsinc!ub!csn!ncar!gatech!howland.reston.ans.net!sol.ctr.columbia.edu!
deep.rsoft.bc.ca!mindlink.bc.ca!a9129@rutgers.rutgers.edu
Subject: tube wanted..
To: info-hams@ucsd.edu

does anyone know where i can get an einac 100th or a 6an (i think there the same tube) for relitively cheeplly? i need one for my linear amp..
tia :-) vince....

--
vince geisler West vancouver bc
(Society for Advancement of Amateur Astronomy).

Date: (null)
From: (null)
I'm about to take the plunge and cough up for the MVT7100 from the UK
Not that I can afford it but, erm, well, er I'm English and I'll be helping the economy, yeah that's the ticket!

Wondering if my girlfriend will buy such a feeble lie,

--
Gabe Evans
Transplanted Mancunian
gevans@panix.com

Date: Sat, 26 Feb 1994 14:00:19 GMT
From: ihnp4.ucsd.edu!pacbell.com!att-out!walter!dancer.cc.bellcore.com!not-for-mail@network.ucsd.edu
To: info-hams@ucsd.edu

References <marcbgCLs9GF.GK9@netcom.com>, <2kld93\$ovk@dancer.cc.bellcore.com>, <2klrff\$c01@cville-srv.wam.umd.edu>
Subject : Re: On-line Repeater Directory

In article <2klrff\$c01@cville-srv.wam.umd.edu>,

Scott Richard Rosenfeld <ham@wam.umd.edu> wrote:

>Just because there's an online repeater directory out there doesn't mean
>that there's no market for the ARRL Repeater Directory. As stated previously,
>who really wants to carry around a bunch of 8-1/2 x 11 inch
>sheets of paper, anyway?

>

>All of you people out there - have you seen that incredibly neat repeater
>MAP book out there? It shows up at hamfests all the time, and MANY times
>have I considered getting a copy, because it's a lot easier to look at
>a map, compare it to your road map, and SEE what repeaters may be within
>range. The ARRL seems to not be too worried about that one, and it
>probably isn't cutting into the league's profits too much.

That "MAP Directory" is also advertised in the March Issue of CG magazine
on page 70. The Map directory is advertised as being 175 pages,
it includes location, highways, plus other helpful info.

Standard Disclaimer- Any opinions, etc. are mine and NOT my employer's.

Bill Sohl (K2UNK) BELLCORE (Bell Communications Research, Inc.)
Morristown, NJ email via UUCP bcr!cc!whs70
201-829-2879 Weekdays email via Internet whs70@cc.bellcore.com

Date: Sat, 26 Feb 1994 15:33:07 GMT

From: ihnp4.ucsd.edu!swrinde!gatech!wa4mei.ping.com!ke4zv!gary@network.ucsd.edu

To: info-hams@ucsd.edu

References <CLDxyq.K47@srgenprp.sr.hp.com>,
<1994Feb18.172005.8942@ke4zv.atl.ga.us>, <1994Feb24.201333.9607@arrl.org>

Reply-To : gary@ke4zv.atl.ga.us (Gary Coffman)

Subject : Re: Medium range point-to-point digital links

In article <1994Feb24.201333.9607@arrl.org> zlau@arrl.org (Zack Lau (KH6CP))
writes:

>Gary Coffman (gary@ke4zv.atl.ga.us) wrote:

>: >: M/Acom 10mw gunnplexer transceivers are available for on the order of
>: >: \$350 from SI, or raw gunnplexers can be found for \$30-\$70 on the surplus
>: >: market. But you have to design an AFC system, and the high speed digital
>: >: modulator/demodulators for them. Find dishes for them, and find line of
>: >: sight paths for the links. Costs could be similar, around \$1000 per
>: >: link, but site selection would be much more restricted, and likely
>: >: range as well (only a couple of miles for reasonable sized dishes
>: >: and average terrain). Ten watts and 4 foot dishes can give 50+ mile
>: >: paths at video bandwidths under good conditions, but that's serious money.
>: >: It could be worth it for the higher throughput in some cases.

>

>New Alpha Gunnplexers are \$48.00 from SHF Parts 7102 W. 500 S. La Porte,
>IN 46350. The used (checked out) ones are \$25.00 each. These should
>be fine for 1 MB/s links. For more bandwidth, you can get new ones with
>varactor diodes (voltage tuning) for \$66 each.

Yeah, I have a couple, but these are just raw gunnplexer components.
Kitting up a competent data transceiver runs the price up a bunch.
Note for a nationwide network you need a *lot* of these transceivers,
and not everyone will be a microwave guru who can whip up something
out of available surplus. We're going to need standard kits, and
assurance of continuing spares to maintain the network.

>Dish antennas aren't as cheap as they used to be, almost doubling in
>price. But at around \$130 (including shipping) for a pair of new 2 ft
>dishes, I'd say the costs are similar to that for VHF yagis.

And surplus is currently even cheaper. I've been buying dishes for much
less as a lot of the terrestrial customer networks convert to fiber optic.
Georgia Power took a bunch of 4 footers out of service and sold them
cheap. Unfortunately some of them have a lot of bullet holes in them,
but there were servicable ones in the group, and some up to 8 foot.
(Don't bother to write, they're all gone now. Just keep your eyes open
for opportunities in your local area.)

>Why not 10 watts? I've noticed 6 GHz 5W and 10 watt bricks showing
>up on the surplus market. They have around 30 dB to 40 dB of
>gain. I just got some PHEMT MMICs that sell for \$8 each--one sample
>showed a 2.5 dB NF with 15 dB of gain at 5.8 GHz.

If we weren't in danger of losing much of our 2 GHz allocation, there
are a lot of 10 watt amps showing up on the surplus market that could
be used there. 10 GHz, however, is another matter. Finding 10 watts there
is tougher unless you fall into a large cache of klystrons or TWTs.

>: Note that over a perfectly smooth Earth, LOS is only 38.72 miles
>: for a dish 1,000 feet HAAT. For the typical van mast, or ham tower,
>: of 40 feet, LOS is only 7.745 miles. (Double those numbers for a
>: grazing path to another site of the same HAAT.) When we add in real
>: obstacles like 40-1000 foot buildings, 100 foot trees, etc, it gets much
>: worse. And to avoid the first Fresnel zone, we need to clear an obstacle
>: at the mid-point of the path by 30.96 feet. That's not going to happen
>: even over smooth Earth at a distance greater than 3.87 miles with
>: a 40 foot mast. So pure LOS is pretty much a mountaintop to mountaintop
>: affair for longer distances.

>

>I don't get this. Why not use buildings man made mountaintops?
>Sure, often takes a bit of politics or \$\$\$ to get them, but once

>you manage that, I'd say that a nice rooftop is better than a
>mountaintop of similar elevation. Usually, power and access are
>much better.

Because they are rarely where you need them. You use them when they're in the right place, and you can get site access, but tall buildings are mainly clustered in metro downtowns. That doesn't help much when you need to cross farm country to get from one metroplex to the next. Plus those building clusters really cause a lot of multipath problems, and those downtowns are generally also very high RF environments. Staying away from them is generally a win.

At least in the Southern Appalachians, most mountaintop sites have reasonable service roads going right to the door of the site shack. That's often easier than trying to negotiate a bunch of tools and test equipment to a rooftop site downtown with its poor parking, security checkpoints, and tied up freight elevators. I've spent 2 hours just **getting** to the roof of the Bell Center. I can drive up Sweat Mtn, fix the problem, and be back down in 2 hours.

Note the main point, however. Even with 1000 foot HAATs, LOS range is still modest compared to the distances we have to span in connecting the metroplexes, never mind the distances involved in connecting hamlets and individual rural amateurs.

>Another source of man made mountaintops are amateur
>towers, particularly those of DX and contest types. Sometimes,
>hams will let you put stuff on a tower, particularly if it doesn't
>cause interference. Here, microwave gear can have its advantages.
>(forget trying to put 20 meter stuff on an HF DXer's tower for
>your digital link). As hams get older, they seem to be more
>willing to let others climb their tower. Even some youngsters
>will let you do their tower work :-).

Some DXer's towers are a little better than the 40 foot masts I figured above, but finding 120+ foot towers along your path in the necessary places is still a chancy business. Not **that** many DXers have killer towers, or live in the rural areas your links have to cross.

>: To summarize, if we could depend on having LOS paths, a 10 GHz system
>: would be ideal, but in the real world we probably can't afford the
>: number of hops that would require (except in special terrain cases
>: like the California coast with it's mountains overlooking the population
>: areas), and 219 MHz calculations seem to show it will suffice using
>: troposcatter over the much longer paths we are likely to need in our
>: rolling terrain.

>

>Why do everything on one band? Consider a simple system
>with two inputs and two outputs over very long paths.
>If you had to do this on 219 MHz, I doubt you could
>make both links full duplex at low cost. But, if you used
>two bands, it becomes a much easier task. True, there are
>economy of scale considerations. But, this usually doesn't
>take into account factors like surplus parts, where small
>numbers of goods are cheaper (till you buy enough to make
>them scarce again). Thus, I can see hams buying surplus \$20
>to \$50 microwave amps to build long distance links, while such
>amps would be impossible to have mass produced at
>low cost, even if every USA amateur were to buy one.

Well we are taking the crossband approach with our 56 kb net. We use alternating 222 MHz and 430 MHz links now. If the 219 MHz segment opens up, we can use that along with 430 MHz instead and give back our wideband chunks on 222 MHz to the voice repeater boys. That band's filling up fast.

Here's the situation as I see it. We need a nationwide network with better thruput than 1200 baud simplex digis. Everybody recognizes that. (Well unfortunately not **everybody**, we still have those who say 1200 is faster than they can type. They don't understand that a digital network is for far more than keyboard QSOs and BBS DXing. That mentality of low thruput and random individual contacts, fostered by our history with CW and DXing, is rather prevalent among a certain group of hams.)

To get that higher speed network, we need a lot of sites, fewer if we can do longer range hops, many more if we're restricted to LOS. And those sites will have to be erected primarily by digital networking folks whose RF expertise is often marginal at best. And those links will have to be **maintained** indefinitely if the network is to survive. This argues against ad hoc surplus lashups and poor link margins. Of course each site is going to be somewhat unique due to it's specific terrain problems, and those of it's neighboring sites. However, we need to establish some baseline network link standards that can be applied to most sites and paths. These can serve as guides to both the equipment developers, and to the site installers and maintainers. This is similar to old Bell System Standards and Practices documents.

We really need to do a hierarchy of RF link standards from 9600 baud VHF through 56kb UHF and on up to high performance microwave systems at the megabaud+ level. It's obvious that not all areas are going

to be able to be served with megabaud+ trunks. Either because of terrain or remote location or lack of local activity, some branches of the network are going to have to be at lower speed levels for some time yet. There are vast stretches of the country where the amateur population is so low that there will be no one nearby to erect or maintain network sites of even moderate complexity. Even given that, however, I'd still argue that even a low speed amateur link is better than using a telco bypass gateway. That rather defeats the purpose of an independent amateur *radio* network.

We need standards for reliability, such as path fade margin standards, frequency stability standards, life cycle maintenance requirements, etc. We need interoperability standards. And we need a load shedding and reroute methodology. We need pre-engineered plans for short, medium, and long path hops, with the appropriate baud limits for each of those types of paths. We need BER standards such that we can say X path needs to be of Y kind to meet network BER requirements, or we need to use FEC or some other method of assuring prompt error recovery on that path. Etc, etc, etc. I hope that some of the participants here will toss out some trial balloons on these points so we can get to work developing a coherent national plan.

Gary

--

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